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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/403,744 | 01/03/2000 | JEAN-LUC HOFFMAN | 99215 | 7634 |

7590 03/10/2003

DENNISON MESEROLE SCHEINER & SCHULTZ
1745 JEFFERSON DAVIS HIGHWAY
SUITE 612
ARLINGTON, VA 22202-3417

EXAMINER

COMBS, JANELL A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1742

15

DATE MAILED: 03/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/403,744

Applicant(s)

HOFFMAN ET AL.

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

Specification

1. In the response on page 3, applicant submitted that marked up copies showing the changes to the specification page 1 and page 5 was filed, however a copy was not received.

Please resubmit.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 20-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Papich et al (US 5,669,436) in view of Godinho (US 5,954,117 A).

Papich teaches a method of twin roll casting (Fig. 11d) an aluminum alloy comprising (in weight%): 0.5-2.2% Mn, 0.1-0.7% Fe, 0.05-0.6% Si, and 0.05-0.5% Cu (column 6 lines 48-51), to a thickness of 0.150-0.300 inches (column 9 line 20, which is equivalent to 3.8-7.6 mm). The force applied to the rolls during casting taught by Papich at Fig. 11d overlaps the presently claimed ranges. For example, the presently claimed condition of *Force (ton/meter of strip width) = 300 + 2000/(thickness of cast strip, in mm)* falls within the upper and lower limits of operating pressure given in Fig. 11d of Papich for cast strips 3.8-7.6 mm thick (as taught by Papich, column 9 line 20).

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Papich does not specify a) using “cooled shrinked cylinders” (claim 1), or the temperature of the cylinder shells during casting (claims 2 and 3) as presently claimed. However, Godinho teaches it is conventional to twin roll cast aluminum alloys with an internally cooled twin roll caster (column 8 lines 52-56, column 10 lines 11-14), wherein the surface temperature of the casting rolls is maintained 120-200°C (column 10 lines 13-14). Godinho teaches that said process obtains a strip with a more uniform appearance (column 7 lines 36-37). It would have been obvious to one of ordinary skill in the art to perform the process as taught by Papich of twin roll casting, and further using the cooled cylinders with a surface temperature maintained at 120-200°C, as taught by Godinho (column 10 lines 13-14), because Godinho teaches that said cylinders are able to obtain a more uniform strip and higher casting speed (column 7 line 37, 66).

Neither Godinho nor Papich teach the elongation, yield strength (or earing), or average particle size of an intermetallic containing at least one of Fe, Mn, and Si, wherein said mechanical properties and microstructure are obtained by performing said process on the instant Al-Fe-Mn alloy. However, the examiner asserts that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Because the combination of Papich and Godinho teaches a method of twin roll casting Al-Mn-Fe alloys, wherein said alloy composition and method steps substantially overlaps the presently claimed alloy and method steps, then

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substantially the same properties, such as yield strength, elongation, and intermetallic characteristics, are expected to occur. Therefore, it is held that Papich and Godinho has created a prima facie case of obviousness of the presently claimed invention.

Concerning dependent claim 21, as stated above, Godinho teaches a shell temperature $>130^{\circ}\text{C}$.

Concerning dependent claim 22, Godinho teaches said shell has a thin layer of carbonaceous material (column 3 lines 6-15), which qualifies as a “material with poor thermal conductivity”.

Concerning dependent claims 23 and 24, Papich does not specify that the arc of contact between the metal and the casting rolls is less than 60 mm, or less than 56 mm. However, the examiner points out that it is within the disclosure of Papich to adjust the setback (distance of the ceramic caster tip from the point of closest approach of the rolls in the roll bite), because Papich teaches that increasing the setback increases the hot working (column 10 lines 41-46). Therefore, the examiner asserts that it is within the disclosure of Papich to obtain an arc of contact of <60 mm or <56 mm. Alternatively, Godinho teaches that it is conventional for the arc of contact to be less than 100mm (column 4 lines 44-45), and preferably between 50-80 mm (Fig. 2 “Z”, column 4 lines 31, 44-49). It would have been obvious to perform the process of twin roll casting as taught by Papich, while using an arc of contact between 50-80 mm, because Godinho teaches that said arc of contact is conventional in the art of twin roll casting aluminum alloys, and because Godinho teaches that a strip produced by such process step exhibits a more uniform surface (column 4 lines 44-45, column 7 lines 36-37).

Concerning dependent claims 25-32, as stated above, because the combination of Papich and Godinho teaches a method of twin roll casting Al-Mn-Fe alloys, wherein said alloy composition and method steps substantially overlaps the presently claimed alloy and method steps, then substantially the same properties, such as yield strength, elongation, and earing, are expected to occur. Therefore, it is held that Papich and Godinho has created a prima facie case of obviousness of the presently claimed invention.

4. Claims 20-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Godinho (US 5,954,117 A).

Godinho teaches a method of twin roll casting a strip 2-8 mm thick (column 1 line 28), typically 5mm thick (column 7 line 1), with an internally cooled twin roll caster (column 8 lines 52-56, column 10 lines 11-14), wherein the surface temperature of the casting rolls is maintained 120-200°C (column 10 lines 13-14), and a force of 0.75-1.25 ton/m² is applied (column 5 lines 16-19). In the examples, a separating force of 350 ton and 280 ton are applied to the 5 mm thick strip, which falls within the presently claimed ranges. Godinho teaches a variety of aluminum alloys are suitable for said process (column 9 lines 7-8), including AA1145 (column 6 line 67), which overlaps the presently claimed composition ranges. Godinho teaches that said process obtains a strip with a more uniform appearance (column 7 lines 36-37) and high casting speed (column 7 line 66).

Godinho does not teach the elongation, yield strength (or earing), or average particle size of an intermetallic containing at least one of Fe, Mn, and Si, wherein said mechanical properties and microstructure are obtained by performing said process on the instant Al-Fe-Mn alloy. However, when the claimed and prior art products are identical or substantially identical in

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structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Because the Godinho teaches a method of twin roll casting Al-Mn-Fe alloys, wherein said alloy composition and method steps substantially overlaps the presently claimed alloy and method steps, then substantially the same properties, such as yield strength, elongation, and intermetallics, are expected to occur. Therefore, it is held that Godinho has created a prima facie case of obviousness of the presently claimed invention.

Concerning dependent claim 21, as stated above, Godinho teaches a shell temperature >130°C.

Concerning dependent claim 22, Godinho teaches said shell has a thin layer of carbonaceous material (column 3 lines 6-15), which qualifies as a “material with poor thermal conductivity”.

Concerning dependent claims 23 and 24, Papich does not specify that the arc of contact between the metal and the casting rolls is less than 60 mm, or less than 56 mm. However, the examiner points out that it is within the disclosure of Papich to adjust the setback (distance of the ceramic caster tip from the point of closest approach of the rolls in the roll bite), because Papich teaches that increasing the setback increases the hot working (column 10 lines 41-46). Therefore, the examiner asserts that it is within the disclosure of Papich to obtain an arc of contact of <60 mm or <56 mm. Alternatively, Godinho teaches that it is conventional for the arc of contact to be

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less than 100mm (column 4 lines 44-45), and preferably between 50-80 mm (Fig. 2 "Z", column 4 lines 31, 44-49). It would have been obvious to perform the process of twin roll casting as taught by Papich, while using an arc of contact between 50-80 mm, because Godinho teaches that said arc of contact is conventional in the art of twin roll casting aluminum alloys, and because Godinho teaches that a strip produced by such process step exhibits a more uniform surface (column 4 lines 44-45, column 7 lines 36-37).

Concerning dependent claims 25-32, as stated above, because the Godinho teaches a method of twin roll casting Al-Mn-Fe alloys, wherein said alloy composition and method steps substantially overlaps the presently claimed alloy and method steps, then substantially the same properties, such as yield strength, elongation, and earing, are expected to occur. Therefore, it is held that Godinho has created a prima facie case of obviousness of the presently claimed invention.

Response to Amendment/Arguments

5. In the response filed on December 31, 2002, applicant amended claim 20 and added new claim 32. Applicant's argument that the present invention is allowable over the prior art of record because the prior art does not teach a resultant product with $R_{0.2} \times A > 2500$ resulting from an average particle size of an intermetallic containing at least one of Fe, Mn, and Si $\leq 0.4 \mu\text{m}$, has not been found persuasive. As stated above, because the prior art method steps and alloy composition substantially overlaps the presently claimed alloy and method steps, then substantially the same properties, such as YS, elongation, earing, and intermetallics are expected to occur.

Applicant's argument that the present invention is allowable over the prior art of record because maintaining a force within the presently claimed limits has been found to be critical to obtain strip of the desired quality (arguments page 5) and therefore applicant has set forth unexpected results, has not been found persuasive. The fact that earing and deformation/force are related is not unexpected. "Metals Handbook Vol. 14 Forming and Forging" defines earing as "the formation of ears or scalloped edges around the top of a drawn shell, resulting from directional differences in the plastic-working properties of rolled metal with, across, and at angles to the direction of rolling". In other words, it is known that earing is related to anisotropy as a result of deformation. The prior art teaches maintaining a force well within the presently claimed limits (Godinho at column 5 lines 16-19, see also the examples; Papich at Fig. 11d), and therefore substantially the same earing is expected to occur.

Because the examiner has set forth a prima facie case of obviousness, including motivation to modify said references and reasons why the instant properties are expected to be present, and because applicant has not clearly shown that the instant process achieves specific unexpected results with regard to the prior art of record, the rejection is deemed proper.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after


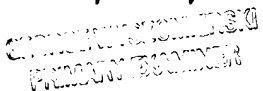
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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (703) 308-4757. The examiner can normally be reached on 7:30 am- 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703) 308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7719 for regular communications and (703) 305-7719 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

jcm 
March 5, 2003